ATTACHMENT NOT INCLUDED

OXYVINYLS

Oxy Vinyls, LP
HOUSTON OPERATIONS
ADMINISTRATION
P.O. BOX 500
DEER PARK, TX 77536
281/476-2000

July 24, 2000

Mr. Philip Crocker
Water Management Division (6W)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, TX 75202

Re: Final Report - Patrick Bayou Pollutant Source Study

Dear Mr. Crocker:

In accordance with the request in your letter dated May 25, 2000, attached are seven copies of the Final Report for the Patrick Bayou Pollutant Source Study. Responses to each of your comments in the letter of May 25, 2000 are provided below.

An Executive Summary which provides a synopsis of the study and its findings has been incorporated into the final report.

Figure 1.1 of the final report was revised to show the location of the intake. As noted in the figure, the intake structure is located upstream of the mouth of Patrick Bayou.

The copper concentration in the Shell R001 discharge is discussed in Attachment A to this letter.

A discussion of the mercury and Arochlor 1248 results has been added to the text of the final report. Mercury was measured in Outfall 002 on all six sampling events. The observed concentration in the outfall could not be explained by the mercury concentration in the Intake sample in all events. Arochlor 1248 was detected in 4 of the six sampling events at Outfall 002. Arolchlor 1248 was also detected in 4 of the six sampling events at the Intake. In five of the six data pairs the concentration in Outfall 002 was greater than the concentration measured in the Intake. The Arochlor 1248 concentration measured in Outfall 002 is certainly partially attributable to the concentration in the Intake. For five of the six data pairs, the concentration in the outfall was slightly higher than the concentration in the Intake.

As discussed in the report, TEXTOX is the modeling tool used by the TNRCC in permitting wastewater discharges. As such, it is an appropriate tool to use in evaluating the discharge data collected in this study. The description of TEXTOX modeling in the report has been amended to state that the modeling performed does not take into account the upstream concentration of a particular parameter.

As discussed in the section on the data validation, the data validation process did not invalidate any of the individual samples based upon analytical issues. However, the discussion of outliers included in the report is intended to address the issue of the effect of a single data point out of a set of six on the average and maximum statistics generated from that data set. For example, as discussed in Section 3.1.1 of the report, one of the samples from Outfall 001 for total CDD/CDF had a much higher concentration than did the duplicate sample from the same event. This data point also was a statistical outlier based upon the Grubb test. Based upon the duplicate sample result and the statistical test, the summary statistics for that outfall did not include that particular data point. Outliers are noted in the data sets for each of the outfalls.

The zinc concentration in the Shell R003 discharge is discussed in Attachment A to this letter.

The highest observed nickel and zinc concentrations from the OxyVinyl oufalls were from Outfall 005. This outfall discharges to the Houston Ship Channel downstream of the mouth of Patrick Bayou. See Attachment B to this letter for additional discussion of nickel and zinc discharge.

Please see attachment B to this letter for additional discussion of mercury in the OxyVinyl discharge during stormwater conditions.

The referenced sentences in Section 3.3 and on page 3-8 have been amended.

Seven copies of the final report have been sent in a separate shipment.

This submittal concludes the Patrick Bayou Pollutant Source Study. Any future correspondence regarding the characterization of a discharge or any continuing studies that one of the participants is conducting should be addressed to that individual discharger.

Sincerely,

Ted Brenneman

Attachments

ATTACHMENT A

Shell Deer Park Refining Company
A Division of Shell Oil Products Company

P. O. Box 100
Deer Park, TX 77536

June 14, 2000

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Philip A. Crocker
United States Environmental Protection Agency
Region 6
Watershed Management Section
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Subject: Patrick Bayou Pollutant Source Study
Shell Deer Park Refining Company
Outfalls R-001 and R-003

Dear Mr. Crocker,

Your letter dated May 25, 2000 provided comments on the Final Report of the Patrick Bayou Pollutant Source Study. Two of those comments were specific to Shell Deer Park Refining Company's outfalls R-001 and R-003. Shell's response to those comments (comments on Figure 3.1 and Section 3.4.3) are found in Attachment 1.

If you have any questions or would like to discuss further, please call Janice Wendel at 713-246-1068.

Very truly yours,

Susan L. Smith

Susan L. Smith, Manager
Environmental and Compliance Assurance
Deer Park Refining Services
Agent for
Shell Deer Park Refining Company

Attachments

Figure 3.1 – Are there any reasons why the copper concentration at Shell Refinery dicharge is increasing with time?

There are no process reasons for the copper concentration to have varied over the course of the study. The discharge from R-001 is analyzed for total copper once per week as a condition of the discharge permit (TNRCC permit 00403). Attachment 2 is a tabulation of the copper concentrations reported to TNRCC for the years 1998, 1999 and year-to-date 2000. Variation in copper concentration can also be seen in the self-reported data.

Section 3.4.3 – What is Shell's interpretation of elevated metals concentrations in the R-003 discharge (e.g., 4,372 ug/l of zinc)? What is the projected loading and might these levels lead to water quality problems? Source evaluation is recommended to address the high storm water concentrations.

Storm water samples for the Patrick Bayou study were collected under very specific rainfall conditions. First flush samples were collected during the first 30 minutes of discharge during an event which occurred after a period of 10 days with no rainfall.

As discussed in the Patrick Bayou report, there are no relevant aquatic life and human health criteria available for screening storm water samples. In the absence of storm water specific criteria, the results were compared to the grab sample limits for tidal waters found in 30TAC319.23. The zinc value for the grab sample of R-003 does not exceed the appropriate grab limit.

The design of the storm water sampling for the Patrick Bayou study causes the results of the storm water analyses to be inappropriate for calculation of load. The study was designed to evaluate only the first flush discharge. In order to project loading it will be necessary to collect samples periodically throughout the discharge event and to estimate the flow amount.

Evaluation of the discharge effect on water quality will also require consideration of the magnitude of discharges, frequency of discharge, and duration of discharge. Ambient water quality criteria are derived from acute and chronic toxicity testing data. Equating a single short-term discharge event with an accompanying grab sample would not be appropriate for determining compliance to ambient criteria, especially at point of discharge without consideration for mixing and dilution.

Shell will collect additional samples for zinc at R-003 during 3 rainfall events so that the zinc loading can be estimated. Samples will be collected periodically during the outfall event. When results of this additional sampling are available, Shell will meet with you to discuss a forward path.

OUTFALL R-001 COPPER
1998
Copper ug/l

Date	Copper, ug/l	Date	Copper, ug/l
January 5, 1998	7.2	July 1, 1998	6.4
January 12, 1998	<5.0	July 14, 1998	6.5
January 19, 1998	13.2	July 20, 1998	7.7
January 26, 1998	5.3	July 27,1998	<5.0
February 2, 1998	7.8	August 3, 1998	<5.0
February 9, 1998	12.6	August 10, 1998	<5.0
February 16, 1998	7.1	August 17, 1998	<5.0
February 23, 1998	8.2	August 24, 1998	10.7
		August 31, 1998	5.5
March 2, 1998	6	September 7, 1998	<5.0
March 9, 1998	17.7	September 14, 1998	8.6
March 16, 1998	9.8	September 21, 1998	9
March 23, 1998	8.5	September 28, 1998	9.2
March 30, 1998	<5.0		
April 6, 1998	<5.0	October 5, 1998	11.4
April 13, 1998	21.5	October 12, 1998	9
April 20, 1998	<5.0	October 19, 1998	<5.0
April 27, 1998	7.2	October 26, 1998	5
May 4, 1998	<5.0	November 2, 1998	<5
May 11, 1998	7.1	November 9, 1998	<5
May 18, 1998	9.8	November 16, 1998	<5
May 25, 1998	5.3	November 23, 1998	<5
		November 30, 1998	<5
June 1, 1998	<5.0	December 7, 1998	<5
June 8, 1998	8.3	December 14, 1998	<5
June 15, 1998	8	December 21, 1998	10.3
June 22, 1998	<5.0	December 28, 1998	13.7
June 29, 1998	9.5		

OUTFALL R-001 COPPER
1999
Copper ug/l

Date	Copper, ug/l	Date	Copper, ug/l
January 4, 1999	6.2	July 5, 1999	<5
January 11, 1999	5.2	July 12, 1999	8.1
January 18, 1999	5.6	July 19, 1999	<5
January 25, 1999	5.4	July 26, 1999	<5
February 1, 1999	<5	August 2, 1999	<5
February 8, 1999	11.5	August 9. 1999	<5
February 15, 1999	<5	August 16, 1999	<5
February 22, 1999	5.8	August 23, 1999	<5
		August 30, 1999	<5
March 1, 1999	10	September 6, 1999	<5
March 8, 1999	<5	September 13, 1999	16
March 15, 1999	7.1	September 20, 1999	<5
March 22, 1999	29	September 27, 1999	<5
March 29, 1999	<5		
April 5, 1999	18.3	October 4, 1999	<5
April 12, 1999	8.5	October 11, 1999	<5
April 19, 1999	7.1	October 18, 1999	>5
April 26, 1999	7.4	October 25, 1999	<5
May 3, 1999	7	November 1, 1999	<5
May 10, 1999	7.7	November 8, 1999	<5
May 17, 1999	<5	November 15. 1999	<5
May 24, 1999	<5	November 22, 1999	6.5
May 31, 1999	7.2	November 29, 1999	<5
June 7, 1999	7.3	December 6, 1999	5.4
June 14, 1999	<5	December 13, 1999	6
June 21, 1999	<5	December 20, 1999	<5
June 28, 1999	<5	December 27, 1999	<5

OUTFALL R-001 COPPER
2000 Year-To-Date
Copper, ug/l

Date	Copper, ug/l
January 3, 2000	8.7
January 10, 2000	<5
January 17, 2000	21.3
January 24, 2000	<5
January 31, 2000	5.0
February 7, 2000	<5
February 14, 2000	<5
February 21, 2000	<5
February 28, 2000	<5
March 6, 2000	5.8
March 13, 2000	6.6
March 20, 2000	<5
March 27, 2000	<5
April 3, 2000	11.3
April 10, 2000	7.0
April 17, 2000	<5
April 24, 2000	<5
May 1, 2000	<5
May 8, 2000	<5
May 15, 2000	5.4
May 22, 2000	5.5
May 29, 2000	<5
June 5, 2000	<5

ATTACHMENT B

ATTACHMENT B

Oxy Vinyls, LP
HOUSTON OPERATIONS
ADMINISTRATION
P.O. BOX 500
DEER PARK, TX 77536
281/476-2000

July 24, 2000

Mr. Philip Crocker
Water Management Division (6WQ-EW)
U. S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: Patrick Bayou Study
NPDES No. TX0007412, TNRCC No. 00305

Dear Sir:

In your letter to Oxy Vinyls, LP (OxyVinyls) dated May 25, 2000 you requested additional information to supplement what was submitted in the Final Report, Patrick Bayou Pollutant Source Study. Those requests are answered in this letter (which is attached to a letter written by our contractor) or in a separate attached letter from Shell Chemical. This letter will address those questions which are specific to OxyVinyls outfalls.

The first question that is specific to OxyVinyls references Section 3.1.1. You requested a discussion of the concentrations of Mercury and Aroclor 1248 found in wastewater discharged via Outfall 002. Data contained in the report shows that concentrations of mercury and Aroclor 1248 are elevated when compared to concentrations of those two chemical substances found in Houston Ship Channel (HSC) water. Water from the HSC is the source of the vast majority of the water discharged to Outfall 002. Since the completion of sampling for this study, OxyVinyls has collected additional samples from wastewater streams that combine inside the plant to make up wastewater which is discharged via Outfall 002. In doing so we believe we have identified a source of mercury. At present, we are conducting additional studies to ensure the identification and to quantify the amount of mercury being discharged. We are also developing the scope of work required to collect the mercury containing wastewater source and return it to the mercury cell waste water treatment process. The wastewater treatment process will remove mercury prior to its

discharge through Outfall 001. We have also collected samples of water and analyzed them for PCB congeners. In the samples collected from streams that combine to form Outfall 002 we have not found a source of the PCB congener pattern identified in the previous samples from outfall 002. We plan to continue to sample to locate the source(s) of the previously identified PCBs at outfall 002. We will update you with our findings and Source Reduction Plan when they are available.

The second question concerns Section 4.1. A discussion of the elevated concentrations of nickel and zinc in water discharged at outfall 005 was requested. As you pointed out, the concentrations do not exceed water quality based effluent standards for discharge to the HSC. Regardless the levels may be of future concern, and we have initiated a search for the sources. Sampling of the streams that combine to form what becomes outfall 005 has identified a stream that appears to contain these two metals. We will continue to sample to confirm their presence. Zinc is not used in the plant manufacturing processes. Zinc is present in some metallic structural components and may be the reason for its presence in water streams. Nickel is also present in metallic structural components and in some process waters. Sampling has not shown that the stream that contains the process water is a significant contributing source. We do, however, plan to continue to sample this intermittent process stream.

The third question that was directed to OxyVinyls concerned mercury concentrations in storm water samples at Outfall 001. Sampling confirms a difference in mercury concentrations between water samples taken inside the plant and at outfall 001. The cause of this difference has not yet been identified. We are working to identify the cause of this difference and to develop effective resolutions.

Please contact me at (281) 476-2692 should you have any questions.

Sincerely,

Ted Brenneman
Oxy Vinyls, LP - Houston Operations
Environmental Manager

cc: Mike James - Dallas Legal
John Westendorf - Dallas Environmental

Janice Wendel
Shell Chemical Company
P. O. Box 100
Deer Park, Tx. 77536

Norman W. Mollard
Lubrizol Petroleum Chemicals Company
P. O. Box 158
Deer Park, Tx. 77536

File: 08. 07. 002.